PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appeal No. _____

Application No.:	09/871,324
Filing Date:	May 31, 2001
Applicant:	Wnek et al
Group Art Unit:	1725
Examiner:	Jonathan Johnson
Title:	ANTI-SIDE SPLICE WELDER (as amended)
Attorney Docket:	4348-000119/DVA

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APPELLANT'S BRIEF

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BRIEF ON BEHALF OF APPELLANT

This is an appeal from the action of the Examiner dated March 4, 2004, finally rejecting claims 11, 13, 14, 16, and 19-27. Copies of the claims appealed are attached as an appendix.

I. REAL PARTY IN INTEREST

The real party in interest in the present application is American Technology, Inc. (Assignee).

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

III. STATUS OF THE CLAIMS

Claims 11, 13, 14, 16, and 19-27 stand finally rejected. Claims 12, 15, 17, and 18 have been withdrawn from consideration but should be allowable if generic independent claim 11 is found to be allowable.

IV. STATUS OF AMENDMENTS

An amendment has been filed with this Brief in which the title has been changed and minor grammatical errors were corrected in claims 24 and 27. Applicants request entry of this amendment.

V. SUMMARY OF THE INVENTION

The present invention relates to an ultrasonic welding apparatus for ultrasonically welding electric conductors such as wires. The ultrasonic welder (item 10, Fig. 5, para. [0028]] includes an ultrasonically agitated welding tip [item 18, Fig. 5, para. [0028]] having a welding surface [item 20, Fig. 5, para [0028]] which extends in a plane; a tip guide [item 12, Fig. 5, para [1128]] juxtaposed with the welding tip [18] and having a guide surface [44] extending perpendicular to the welding surface [20]; an anvil [item 26, Fig. 5, para. [0029]] atop of the tip guide [12] and having an anvil surface [52, Fig. 6] extending parallel to the welding surface [20]; a gathering block [item 30, Fig. 5, para. [0029]] having a gathering surface [50] extending parallel to the guide surface [44]; and a controller [CPU 38, Fig. 5, paras. [0030]-[0038]] actuating the gathering block [30] to move from an unloading position to a predetermined loading position, wherein the gathering surface [50] is spaced apart from the guide surface [44] at a predetermined distance to form a workpiece nest defined between the anvil [52], welding [20], gathering [50] and guide surfaces [44], and the controller [38] actuates the gathering block [30] to move in a time-controlled manner away from the working space back to the unloading position [Fig. 9] after welding has been completed.

VI. ISSUES

1. Whether U.S. Patent No. 4,869,419 properly anticipates claims 11, 13, 14, 16, and 19-27 by disclosing all of the limitations therein.

VII. GROUPING OF CLAIMS

Claims 11, 13, 14, 16, and 19-21 are grouped together.

Claim 22-27 are grouped together.

VIII. ARGUMENTS

A. NUSS '419 FAILS TO DISCLOSE ALL OF THE LIMITATIONS OF INDEPENDENT CLAIMS 11 AND 19

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). Applicants submit that Nuss '419 fails to disclose all of the limitations of independent claims 11 and 19. In particular, independent claim 11 includes the limitation of "a controller actuating the gathering block to move from an unloading position to a predetermined loading position, wherein the gathering surface is spaced apart from the guide surface at a predetermined distance to form a workpiece nest defined between the anvil, welding, gathering and guide surface, and a controller actuates the gathering block to move in a time controlled manner away from the working space back to the unloading position after welding has been completed." Contrary to this, the loading and unloading position of the gathering block 4 of Nuss '419 are the same. In particular, as illustrated in Figure 1A, the welding apparatus of Nuss '419 is shown in the loading and unloading position so that a gathering block 4 is located in the same place relative to the tip guide 8 as construed by the Examiner. The disclosure of Nuss '419 fails to disclose a controller for actuating the gathering block to move from an unloading position to a predetermined loading position and actuating the gathering

block to move in a time controlled manner away from the work space back to the unloading position after welding has been completed. In particular, Nuss '419 discloses that

> In the position of the two components illustrated in Figure 2, the crosshead 7 is displaced, as viewed in the drawing, sufficiently far to the right for its abutment surface 10 no longer to project beyond the third anvil surface 9. In this manner, a very wide insertion gap 11' is obtained, which has virtually the whole width of the sonotrode surface 2 and substantially facilitates the placing of the conductors in the compaction chamber before the compaction and welding operation and the removal of the welding conductor node out of the compaction chamber.

(See col. 6, lines 1-54.) From the above discussion, it is clear that the loading and unloading positions of the anvil part 4 (identified as a gathering block by the Examiner) is in the position shown in Figure 2 for both the loading and unloading position. Accordingly, the controller of Nuss '419 does not move the block 4 from an unloading position to a predetermined loading position, since both the unloading and loading positions are the same in the invention of Nuss '419. The Examiner has improperly taken a position "that how the blocks are moved and how the controller operates are process limitations that hold little patentable weight in an apparatus claim." (See page 3 of Paper No. 12).

The Examiner further states "in a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See In re Casey, 152 USPQ 235 (CCPA 1967) and In re Otto, 136 USPQ 458, 459 (CCPA 1963). Put simply, Applicant must establish a structural difference between the instant invention and the prior art." (See p. 3 of Paper No. 12.) However, Applicants note that the Examiner himself has stated that the claims at issue are "apparatus" claims. The Examiner's case citations to In re Casey and In re Otto

are misplaced in view of the fact that the quoted language is directed to a "claim drawn to a process of making." The Examiner has apparently improperly treated the claim limitations directed to the controller in independent claims 11 and 19 as product by process limitations. Instead, Applicants submit that the claim limitations directed to the controller in claims 11 and 19 are directed to the function of the controller which is part of the ultrasonic welder apparatus that is being claimed. Applicants submit that it is improper for the Examiner to treat the limitations directed to the controller as process limitations in an apparatus claim since the limitations are actually directed to the function of an element of the apparatus claim and defines how the controller interacts with the other elements of the apparatus claim.

Finally, with regard to independent claims 11 and 19, the Examiner states that "Applicants has <u>not attempted to argue or show</u> that the apparatus of Nuss is not capable of performing in the claimed manner." (See p. 3 of Paper No. 12.) However, Applicants again submit that the assertion by the Examiner is only relevant to product by process-type claims which is not relevant to the claims as issue. Furthermore, the disclosure of Nuss does not disclose a controller which interacts with the remaining components of the ultrasonic welder in a manner as set forth in the independent claims 11 and 19. In view of the above, Applicants respectfully request that the Board overturn the Examiner's rejections of claims 11, 13, 14, 16, and 19-27 as being improper.

Applicants have noted that claims 22-27 are grouped together. Claims 22-24 each depend from independent claim 19, and should be allowable for the same

reasons as claim 19, as discussed above. Furthermore, claims 25-27 each depend from independent claim 11 and should be allowable for the same reasons as claim 11, as discussed above. Furthermore, Applicants note that claims 22-27 all include limitations directed to the predetermined loading position. In particular, claims 22 and 25 include the limitation that the "predetermined loading position is sufficient only to place the wires in a series of adjacent substantially parallel vertical columns." Claims 23 and 26 define "the width of the predetermined loading position is determined by the formula W=DN where D is the diameter of a single wire or workpiece, and N is a number of columns." Finally, claims 24 and 27 include the limitation that "the width of the predetermined loading position corresponds to a width of the workpiece nest sufficient for stacking the wires in at least one column extending substantially vertically from the welding tip." Applicants submit that Nuss '419 fails to teach or suggest any of these claim limitations directed to "the predetermined loading position." In particular, the loading position of the device of Nuss '419 is always at its leftmost position of the anvil block 4 without taking into consideration the loading of the wires in parallel vertical columns.

Applicants submit that the difference between the Nuss '419 welder and the present invention is that the present invention places the gathering block at the weld width setting before the wires are loaded. This arrangement allows the achievement of a higher quality of splice, whereas if the operator is allowed to load the wires flat on the welding tip as is performed in Nuss '419, a side splice is achieved which provides a splice nugget which is more likely to fail. The Nuss '419 welder attempts to force the wires to stack in the vertical direction by closing the gathering block on the inserted

wires. However, the wires become randomly arranged in the splice welder which leads to inconsistent splice quality. With the method of the present invention, the gathering block is already at the predetermined weld width, and the only way the operator can load the wire is to vertically stack them on top of each other in the desired stack arrangement. Because of this vertical stacking of the wires, a higher quality splice is more consistently produced.

In view of the above, Applicants respectfully requested that the Board overturn the Examiner's rejections of claims 22-27 as further distinguishing over the invention of Nuss '419.

In view of the above presented discussion, Applicants believe that the pending claims are patentably distinguishable over the art cited by the Examiner. Accordingly, Applicants respectfully request that this Board reverse the final rejection of claims 11-27.

A check in the amount of $330 for filing a brief in support of this appeal is enclosed herewith. Please charge any deficiency or credit any overpayment pursuant to 37 C.F.R. § 1.16 or § 1.17 to Deposit Account No. 08-0750.

Respectfully submitted,

Dated: June 3, 2004

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Enclosures: Three (3) copies of Appellant's Brief

APPENDIX

11. An ultrasonic welder comprising:

an ultrasonically agitated welding tip having a welding surface which extends in a plane;

a tip guide juxtaposed with the welding tip and having a guide surface extending perpendicular to the welding surface;

an anvil atop of the tip guide and having an anvil surface extending parallel to the welding surface;

a gathering block having a gathering surface extending parallel to the guide surface; and

a controller actuating the gathering block to move from an unloading position to a predetermined loading position, wherein the gathering surface is spaced apart from the guide surface at a predetermined distance to form a workpiece nest defined between the anvil, welding, gathering and guide surfaces, and the controller actuates the gathering block to move in a time-controlled manner away from the working space back to the unloading position after welding has been completed.

12. The ultrasonic welder defined in claim 11 wherein the anvil is controllably movable toward the welding tip to exert a preset pressure.

13. The ultrasonic welder defined in claim 11 wherein the controller has a memory unit displacing the gathering block to the predetermined loading position in response to data containing a diameter of the workpiece.

14. The ultrasonic welder defined in claim 11 wherein the width of the working space is sufficient to stack at least one column of the workpieces flanked and supported by the guide and gathering surfaces.

15. The ultrasonic welder defined in claim 11 further comprising a pressure sensor for detecting the preset pressure exerted by the anvil.

16. The ultrasonic welder defined in claim 11 wherein the gathering block is controllably stopped for a predetermined period of time before moving back toward the tip guide.

17. The ultrasonic welder defined in claim 11 further comprising an ultrasonic horn having an end face, said welding tip having a plurality of spaced apart holes, each receiving a respective bolt fastening the welding tip to the end face.

18. The ultrasonic welder defined in claim 17 wherein each of the holes has an inner periphery provided with a continuous pad made of resilient material and attached thereto to provide a buffer zone between the horn and welding tip.

19. An ultrasonic welder for splicing a plurality of workpieces comprising:

four anvils having meeting surfaces two of which form side faces of a workpiece nest having a preset width which is defined between the side faces of the nest spaced from one another in a predetermined loading position; and

a controller displacing at least one of the anvils forming the side faces from the predetermined loading position to an unloading position for a predetermined period of time sufficient to remove the welded workpieces and back to the predetermined loading position upon terminating of the predetermined period of time to reestablish the preset width before the workpiece nest receives new workpieces.

20. The ultrasonic welder defined in claim 19, wherein one of the anvils forming the side faces of the workpiece is selected from a group consisting of gathering and tip guide blocks.

21. The ultrasonic welder defined in claim 19, wherein the four anvils comprise an agitated welding tip, a tip guide, an anvil and a gathering block.

22. The ultrasonic welder defined in claim 19 wherein the predetermined loading position is sufficient only to place the wires in a series of adjacent substantially parallel vertical columns.

23. The ultrasonic welder defined in claim 19 wherein the width of the predetermined loading position is determined by the formula W-DN, where D is the diameter of a single wire or workpiece, and N is a number of columns.

24. The ultrasonic welder defined in claim 19 wherein the width of the predetermined loading position corresponds to a width of the workpiece nest sufficient for stacking the wires in at least one column extending substantially vertically from the welding tip.

25. The ultrasonic welder defined in claim 11 wherein the predetermined loading position is sufficient only to place the wires in a series of adjacent substantially parallel vertical columns.

26. The ultrasonic welder defined in claim 11 wherein the width of the predetermined loading position is determined by the formula W=DN, where D is the diameter of a single wire or workpiece, and N is a number of columns.

27. The ultrasonic welder defined in claim 11 wherein the width of the predetermined loading position corresponds to a width of the workpiece nest sufficient for stacking the wires in at least one column extending substantially vertically from the welding tip.